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Duncan Missimer

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EXAMINER

GOODCHILD, WILLIAM J

ART UNIT

PAPER NUMBER

2445

MAIL DATE

DELIVERY MODE

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/661,345	Applicant(s) MISSIMER ET AL.	
	Examiner WILLIAM J. GOODCHILD	Art Unit 2445	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 16 March 2009.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20, 29-49, 76-83 and 92-118 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-20, 29-49, 76-83 and 92-118 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. Claims 35-41 and 44-49 are rejected under 35 U.S.C. 102(b) as being anticipated by DeKoning et al., (US Patent No. 5,974,502), (hereinafter DeKoning).

Regarding claims 35 and 44, DeKoning discloses transmitting a write request for a subset of said multiple blocks of data to said multiple targets [DeKoning, column 1, lines 49-50, column 4, lines 11-14, column 2, lines 55-56 and column 3, lines 2-9 and 13-20].

Regarding claims 36 and 45, DeKoning further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 37 and 46, DeKoning further discloses transferring to said multiple targets, said subset of said multiple blocks of data, if said multiple targets satisfy said request for said subset of said multiple blocks of data [DeKoning, column 3, lines 13-20].

Art Unit: 2445

Regarding claims 38 and 47, DeKoning further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 39 and 48, DeKoning further discloses transmitting a write request for a further subset of an amount of an immediately previous write request, if said multiple targets do not satisfy an amount of data to be transferred of said immediately previous write request [DeKoning, column 3, lines 13-20].

Regarding claims 40 and 49, DeKoning further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claim 41, DeKoning further discloses wherein at least one of said multiple targets comprises a storage disk [DeKoning, figure 2].

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Art Unit: 2445

4. Claims 12-18 and 29-34 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning, and further in view of Raman et al., (US Publication No. 2003/0217119), (hereinafter Raman).

Regarding claims 12 and 29, DeKoning discloses transmitting a write request for said multiple blocks of data to said multiple targets [DeKoning, column 1, lines 49-50, column 4, lines 11-14, column 2, lines 55-56 and column 3, lines 2-9 and 13-20].

DeKoning does not specifically disclose limiting the request for half.

However, Raman, in the same field of endeavor discloses a fraction (such as one-half) [Raman, paragraph 79]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a request for a half in order to allow for a better chance of the data being accepted.

Regarding claims 13 and 30, DeKoning-Raman further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 14 and 31, DeKoning-Raman further discloses transferring to said multiple targets, half of said multiple blocks of data, if said multiple targets satisfy said request for half of said multiple blocks of data [DeKoning, column 3, 13-20, the subset of blocks will be transferred].

Art Unit: 2445

Regarding claims 15 and 32, DeKoning-Raman further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 16 and 33, DeKoning-Raman further discloses transmitting a write request [DeKoning, column 1, lines 49-50, column 4, lines 11-14, column 2, lines 55-56 and column 3, lines 2-9 and 13-20] for half [Raman, paragraph 79] of an amount of an immediately previous write request, if said multiple targets do not satisfy an amount of data to be transferred of said immediately previous write request [DeKoning, column 1, lines 49-50, column 4, lines 11-14, column 2, lines 55-56 and column 3, lines 2-9 and 13-20, broadly looking at this claim, the immediate write request can be the first write request for the entire set of blocks of data].

Regarding claims 17 and 34, DeKoning-Raman further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claim 18, DeKoning-Raman further discloses wherein at least one of said multiple targets comprises a storage disk [DeKoning, figure 2].

5. Claims 19 and 20 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning-Raman as applied to claim 12 above, and further in view of Ibrahim et al., (US Patent No. 6,880,062), (hereinafter Ibrahim).

Art Unit: 2445

Regarding claim 19, DeKoning-Raman does not specifically disclose wherein said targets comprise systems that are compliant with the Fibre Channel protocol.

However, Ibrahim in the same field of endeavor, discloses the SAN using a Fibre Channel network [Ibrahim, column 2, lines 61-67].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate using a Fibre Channel network in order to provide for faster network speeds within the SAN.

Regarding claim 20, DeKoning-Raman-Ibrahim further discloses said targets comprise systems that are compatible with the fibre channel Fibre Channel protocol [Ibrahim, column 2, lines 61-67].

6. Claims 42 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning as applied to claim 35 above, and further in view of Ibrahim.

Regarding claim 42, DeKoning does not specifically disclose wherein said targets comprise systems that are compliant with the Fibre Channel protocol.

However, Ibrahim in the same field of endeavor, discloses the SAN using a Fibre Channel network [Ibrahim, column 2, lines 61-67].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate using a Fibre Channel network in order to provide for faster network speeds within the SAN.

Regarding claim 43, DeKoning-Ibrahim further discloses said targets comprise systems that are compatible with the fibre channel Fibre Channel protocol [Ibrahim, column 2, lines 61-67].

7. Claims 76-82 and 92-98 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning, and further in view of Brewer et al., (US Publication No. 2003/0002503), (hereinafter Brewer).

Regarding claim 76 and 92, DeKoning discloses a host [DeKoning, figure 1];
a first switch [DeKoning, figure 3]; and
a mirroring device capable of mirroring multiple blocks of data [DeKoning, column 1, lines 49-50 and 55-56] to multiple targets [DeKoning, column 1, lines 49-50 and column 4, lines 11-14], if said multiple targets do not satisfy the amount of data to be transferred in multiple blocks of data [DeKoning, column 3, lines 2-9 and 13-20];
logic for signal information to pass at least between said port and said mirroring device [DeKoning, column 3, lines 13-20];
said mirroring device being adapted to transmit a write request for a subset of said multiple blocks of data to said multiple targets [DeKoning, column 3, lines 17-21].

DeKoning does not specifically disclose a second switch coupled to said first switch, said second switch including: at least a port.

Art Unit: 2445

However, Brewer, in the same field of endeavor discloses a plurality of switches with ports [Brewer, paragraphs 1-2].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a plurality of switches in order to overcome a single point of failure.

Regarding claims 77 and 93, DeKoning-Brewer further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 78 and 94, DeKoning-Brewer further discloses wherein said mirroring device is further adapted to transfer to said multiple targets, said subset of said multiple blocks of data, if said multiple targets satisfy said request for said subset of said multiple blocks of data [DeKoning, column 3, lines 13-20].

Regarding claims 79 and 95, DeKoning-Brewer further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 80 and 96, DeKoning-Brewer further discloses wherein said mirroring device is further adapted to transmit a write request for a further subset of an amount of an immediately previous write request, if said multiple targets do not satisfy an amount of data to be transferred of said immediately previous write request [DeKoning, column 3, lines 13-20].

Regarding claims 81 and 97, DeKoning-Brewer further discloses wherein said multiple targets comprise all targets [DeKoning, column 4, lines 11-14, mirroring is to all targets].

Regarding claims 82 and 98, DeKoning-Brewer further discloses wherein at least one of said multiple targets comprises a storage disk [DeKoning, figure 2].

8. Claims 83 and 99-100 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning-Brewer as applied to claim 76 and 92 above, and further in view of Ibrahim.

Regarding claims 83 and 99, DeKoning-Brewer does not specifically disclose wherein said targets comprise systems that are compliant with the Fibre Channel protocol. However, Ibrahim in the same field of endeavor, discloses the SAN using a Fibre Channel network [Ibrahim, column 2, lines 61-67].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to incorporate using a Fibre Channel network in order to provide for faster network speeds within the SAN.

Regarding claim 100, DeKoning-Brewer-Ibrahim further discloses said targets comprise systems that are compatible with the fibre channel Fibre Channel protocol [Ibrahim, column 2, lines 61-67].

9. Claims 101-103, 105, 107-109, 111, 113-115 and 117 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning, and further in view of Brewer.

Regarding claims 101, 107 and 113, DeKoning discloses a first switch [DeKoning, figure 3];

a mirroring device capable of mirroring multiple blocks of data to multiple targets [DeKoning, column 1, lines 49-50, column 4, lines 11-14, column 2, lines 55-56 and column 3, lines 2-9 and 13-20]; and

logic for signal information to pass at least between said port and said mirroring device [DeKoning, column 3, lines 13-20];

said mirroring device being adapted to: receive a write request for a selected number of data blocks directed to a single target [DeKoning, column 3, lines 13-20];

receive replies indicating an allowable number of data blocks from each of the multiple targets [DeKoning, column 3, lines 13-20];

if each of the replies indicates an allowable number of data blocks sufficient to accommodate the write request: provide a reply indicating a sufficient number of data blocks [DeKoning, column 3, lines 13-20];

receive said selected number of data blocks [DeKoning, column 3, lines 13-20]; and provide each of the received data blocks to each of the multiple targets [DeKoning, column 3, lines 13-20]; and

Art Unit: 2445

if any of the replies indicates an allowable number of data blocks not sufficient to accommodate the write request: transmit a write request for a portion of the selected number of data blocks to each of the multiple targets [DeKoning, column 3, lines 13-20]; receive replies indicating an allowable number of data blocks from each of the multiple targets [DeKoning, column 3, lines 13-20];

if each of the replies indicates an allowable number of data blocks sufficient to accommodate the write request: provide a reply indicating a number of data blocks [DeKoning, column 3, lines 13-20];

receive said portion of said selected number of data blocks; and provide each of the received data blocks to each of the multiple targets [DeKoning, column 3, lines 13-20]; determine if the received write request has been completed [DeKoning, column 3, lines 13-20];

if the received write request has been completed, provide a write command complete [DeKoning, column 3, lines 13-20]; and

if the received write request has not been completed, return to the most recently performed operation of transmitting a write request [DeKoning, column 3, lines 13-20].

DeKoning does not specifically disclose a second switch coupled to said first switch, said second switch including: at least a port;

issue write requests for said selected number of data blocks to each of the multiple targets.

Art Unit: 2445

However, Brewer, in the same field of endeavor discloses a plurality of switches with ports [Brewer, paragraphs 1-2].

Brewer also discloses a request to write the selected number of data blocks [Brewer, paragraph 123, lines 7-9].

It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a plurality of switches in order to overcome a single point of failure and to include requesting to write the entire set of blocks of data in order to determine if the targets can accept that amount of data.

Regarding claims 102, 108 and 114, DeKoning-Brewer further discloses if any of the replies to said write request for a portion of the selected number of data blocks indicates an allowable number of data blocks not sufficient to accommodate the write request for a portion of the selected number of data blocks: transmitting a write request for a smaller portion of the selected number of data blocks than the most recently transmitted write request [DeKoning, column 3, lines 13-20];

receiving replies indicating an allowable number of data blocks from each of the multiple targets [DeKoning, column 3, lines 13-20];

if each of the replies indicates an allowable number of data blocks sufficient to accommodate the smaller portion write request: providing a reply indicating a number of data blocks [DeKoning, column 3, lines 13-20];

receiving said smaller portion of said selected number of data blocks [DeKoning, column 3, lines 13-20]; and

Art Unit: 2445

providing each of the received data blocks to each of the multiple targets [DeKoning, column 3, lines 13-20]; and

if any of the replies indicates an allowable number of data blocks not sufficient to accommodate the smaller portion write request, reducing the value of the smaller portion so that an even smaller number of data blocks is being utilized and returning to the step of transmitting a write request for a smaller portion using the even smaller value [DeKoning, column 3, lines 13-20].

Regarding claims 103, 109 and 115, DeKoning-Brewer further discloses transmitting an abort write request to each of the multiple targets before transmitting a write request for a portion of the selected number of data blocks which is smaller than the immediately previous write request [DeKoning, column 3, lines 13-20, inherent when transmitting a new write request].

Regarding claims 105, 111 and 117, DeKoning-Brewer further discloses transmitting an abort write request to each of the multiple targets before transmitting a write request for a portion of the selected number of data blocks which is smaller than the immediately previous write request [DeKoning, column 3, lines 13-20, inherent when transmitting a new write request].

Art Unit: 2445

10. Claims 104, 106, 110, 112, 116 and 118 are rejected under 35 U.S.C. 103(a) as being unpatentable over DeKoning-Brewer as applied to claims 101-102, 107-108 and 113 above, and further in view of Raman.

Regarding claims 104, 110 and 116, DeKoning-Brewer does not specifically disclose said portion is one half and said smaller portion is one half of the previous portion. However, Raman, in the same field of endeavor discloses a fraction (such as one-half) [Raman, paragraph 79]. It would have been obvious to one having ordinary skill in the art at the time the invention was made to include a request for a half in order to allow for a better chance of the data being accepted.

Regarding claims 106, 112 and 118, DeKoning-Brewer-Raman further discloses said portion is one half [Raman, paragraph 79].

Response to Arguments

11. Applicant's arguments filed 03/16/2009 have been fully considered but they are not persuasive.

A – Applicant argues “DeKoning does not determine if multiple targets cannot satisfy the block size of the request. The predetermined limit may be fixed or may be tunable.

Art Unit: 2445

None of the parameters used to develop the fixed or tuned values are whether the multiple targets can satisfy the amount of data to be transferred”.

A – DeKoning discloses a response to a write request [DeKoning, at least column 6, lines 28-54] and when the response that the limit is less than the write request amount of data, a new request is created and sent [DeKoning, at least column 6, lines 28-54]. The request is sent out to the multiple devices that the data will be mirrored on, a response is sent back that allows the amount of data request to be written or determines that there is a limit of the amount of data that can be sent at once and provides that limit back to the requestor [DeKoning, at least column 6, lines 28-54]. As the claim requires a request be sent out, a response allowing the writing the amount requested or a negative response, the claims do not limit the reason for the rejection of the amount of data (i.e., whether the limit is predetermined or determined on the fly for each request).

B – Applicant argues “Claims 39 and 48 require sending a write request for a further subset of the blocks of previous write requests”.

B - DeKoning discloses a write request for a further subset of the blocks of previous write requests [DeKoning, at least column 6, lines 28-54, if the response to the initial write request was negative with an amount that could be sent, the next request is below the predetermined limit, which is a write request for the subset of data].

C – Applicant argues “Claims 103, 105, 109, 111, 115 and 117 require transmitting abort write requests before transmitting the write requests”.

C – DeKoning discloses a rejection of the original write request [DeKoning, at least column 6, lines 28-54, which can be considered an abort of the original write request]

Conclusion

12. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Examiner's Note: Examiner has cited particular paragraphs / columns and line numbers in the reference(s) applied to the claims above for the convenience of the applicant.

Art Unit: 2445

Although the specified citations are representative of the teachings of the art and are applied to specific limitations within the individual claim, other passages and figures may apply as well. It is respectfully requested from the applicant in preparing responses, to fully consider the references in entirety as potentially teaching all or part of the claimed invention, as well as the context of the cited passages as taught by the prior art or relied upon by the examiner.

Should applicant amend the claims of the claimed invention, it is respectfully requested that applicant clearly indicate the portion(s) of applicant's specification that support the amended claim language for ascertaining the metes and bounds of applicant's claimed invention

Any inquiry concerning this communication or earlier communications from the examiner should be directed to WILLIAM J. GOODCHILD whose telephone number is (571)270-1589. The examiner can normally be reached on Monday - Friday / 8:00 AM - 4:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vivek Srivastava can be reached on (571) 272-7304. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Art Unit: 2445

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

WJG

06/25/2009

/VIVEK SRIVASTAVA/

Supervisory Patent Examiner, Art Unit 2445